IN THE CLAIMS

1. (Cancelled)

2. (Currently Amended) The optical switch of claim ~~1~~ 6, wherein said ~~microfluidic~~ actuator comprises an electrohydrodynamic actuator.

3. (Currently Amended) ~~The optical switch of claim 1~~ A microfluidic optical switch comprising:

a fluid contained in a reservoir having a characteristic;

a first optical waveguide having an end located proximate said fluid;

at least one second optical waveguide having an end located proximate said fluid; and

an actuator coupled to said fluid for changing the characteristic of the fluid, wherein said characteristic is a deformable interface formed on said fluid, wherein said deformable interface is a position of a meniscus.

4. (Currently Amended) The optical switch of claim ~~1~~ 6, wherein said fluid further comprises a liquid/liquid interface.

5. (Original) The optical switch of claim 3, wherein said actuator controls the shape of the deformable interface.

6. (Currently Amended) ~~The optical switch of claim 1,~~ A microfluidic optical switch comprising:

a fluid contained in a reservoir having a characteristic;

a first optical waveguide having an end located proximate said fluid;

at least one second optical waveguide having an end located proximate said fluid; and

an actuator coupled to said fluid for changing the characteristic of the fluid, wherein said characteristic is a controllable refractive index gradient.

7. (Currently Amended) ~~The optical switch of claim 1~~ A microfluidic optical switch comprising:

a fluid contained in a reservoir having a characteristic;

a first optical waveguide having an end located proximate said fluid;

at least one second optical waveguide having an end located proximate said fluid; and

an actuator coupled to said fluid for changing the characteristic of the fluid, wherein said fluid further comprises a controllable refractive index gradient region that is controlled by an electric signal.

8. (Currently Amended) ~~The optical switch of claim 1~~ A microfluidic optical switch comprising:

a fluid contained in a reservoir having a characteristic;

a first optical waveguide having an end located proximate said fluid;

at least one second optical waveguide having an end located proximate said fluid; and

an actuator coupled to said fluid for changing the characteristic of the fluid, wherein said fluid further comprises a controllable refractive index gradient region that is controlled by an incident light.

9. (Currently Amended) The optical switch of claim ~~1~~ 6, wherein said reservoir is a tubule.

10. (Cancelled)

11. (Currently Amended) ~~The method of claim 10,~~ A method for operating a microfluidic optical switch comprising:

supplying light through a first waveguide to be incident upon a fluid;

altering a characteristic of the fluid; and

directing, in response to the characteristic alteration, the light into a second waveguide, wherein said characteristic is a position of a meniscus.

12. (Currently Amended) ~~The method of claim 10,~~ A method for operating a microfluidic optical switch comprising:

supplying light through a first waveguide to be incident upon a fluid;

altering a characteristic of the fluid; and

directing, in response to the characteristic alteration, the light into a second waveguide, wherein said characteristic is a refractive index gradient.

13. (Original) The method of claim 12, further comprising:

controlling said controllable refractive index gradient using an electric signal.

14. (Original) The method of claim 12, further comprising:

controlling said controllable refractive index gradient using an incident light.

15. (Currently Amended) The method of claim ~~10~~ 12, wherein said altering step further comprises:

activating an actuator to alter the characteristic.

16. (Currently Amended) ~~The method of claim 15~~ A method for operating a microfluidic optical switch comprising:

supplying light through a first waveguide to be incident upon a fluid;

altering a characteristic of the fluid; and

directing, in response to the characteristic alteration, the light into a second waveguide, wherein said altering step further comprises:

activating an actuator to alter the characteristic, wherein said actuator is an electrohydrodynamic actuator.

17. (Currently Amended) The method of claim ~~10~~ 12, wherein said directing step further comprises:

directing said light into one of a plurality of waveguides.